

PATENT

Atty. Dkt. No. NVDA/P001277

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (Previously Presented): Apparatus comprising:

an output device interfaced to a motherboard;

a fixed rendering device mounted to the motherboard for generating information to be output on said output device;

a connector for attaching one of a plurality of different field-changeable graphics cards including a field-changeable rendering card, to the motherboard, said field-changeable rendering card capable of housing a discrete rendering device for generating information to be output on said output device, the connector comprising a plurality of connector pins and adapted to electronically detect the presence of the field-changeable rendering card and signal the presence and mode of operation of the field-changeable rendering card; and

detection circuitry for detecting that a field-changeable rendering card housing a discrete rendering device is coupled to said connector and causing information from said field-changeable rendering card housing a discrete rendering device to be output on said output device.

Claim 2 (Original): The apparatus of claim 1, wherein said fixed rendering device is an integrated graphics processor and said discrete rendering device is a discrete graphics processing unit.

Claim 3 (Previously Presented): The apparatus of claim 2, wherein said discrete rendering device is adapted to receive a PCI express signal from said integrated graphics processor in order to generate a plurality of signals for display on said output device.

Claim 4 (Previously Presented): The apparatus of claim 11, wherein said graphics processing unit is adapted to generate low voltage differential signaling (LVDS), digital video interface (DVI), television (TV) and video graphics array (VGA) signals.

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Claim 5 (Previously Presented): The apparatus of claim 1, wherein said field-changeable rendering card does not house a discrete rendering device and comprises a passive loop-through card enabling the implementation of LVDS features in the apparatus.

Claim 6 (Original): The apparatus of claim 1, wherein the discrete rendering device is a transmission minimized differential signaling (TMDS) transmitter, and the field-changeable rendering card is a passive loop-through card.

Claim 7 (Original): The apparatus of claim 5, wherein said passive loop-through card completes circuit paths for signals output from said fixed rendering device to said output device.

Claim 8 (Original): The apparatus of claim 7, wherein said output device is a low voltage differential signaling (LVDS) display panel.

Claim 9 (Original): The apparatus of claim 7, wherein said output device is a digital video interface (DVI) display panel.

Claim 10 (Original): The apparatus of claim 1, wherein said field-changeable rendering card is an audio chip.

Claim 11 (Previously Presented): The apparatus of claim 1, wherein the plurality of field-changeable graphics cards includes a passive loop-through card and the mode of operation of the card detected by the connector pins indicates that a passive loop-through card is interfaced to the connector for enabling implementation of low voltage differential signaling (LVDS) features in the apparatus.

Claim 12 (Previously Presented): The apparatus of claim 11, wherein the connector is adapted to cause an LVDS signal to be routed through the loop-through card to the output device comprising a display.

Claim 13 (Previously Presented): The apparatus of claim 1, wherein the plurality of field-changeable graphics cards includes a passive loop-through card and the edge connector is adapted to receive a plurality of DVI signals on several of the plurality of connector pins and route the DVI signals through the loop-through card to the output device.

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Claim 14 (Previously Presented): The apparatus of claim 13, wherein the loop-through card further comprises a discrete rendering device.

Claim 15 (Previously Presented): The apparatus of claim 1, wherein any of the plurality of different field-changeable graphics cards comprises a loop-through card and a discrete rendering device.

Claim 16 (Previously Presented): The apparatus of claim 1, wherein the connector is adapted to cause a peripheral component interface (PCI) express signal to be routed from a driver to the active graphics card to generate a plurality of output display signals.

Claim 17 (Previously Presented): The apparatus of claim 1, wherein the connector is adapted to allow a manufacturer to configure a single motherboard for at least two different graphics modes utilizing different ones of the fully-changeable graphics cards.

Claim 18 (Previously Presented): The apparatus of claim 1, wherein the connector is configured to allow a user of a computing device to replace a graphics system post-assembly.

Claim 19 (Previously Presented): The apparatus of claim 1, wherein the connector is further adapted to maintain a graphics card in a substantially parallel, spaced apart relation relative to the motherboard.

Claim 20 (New): Apparatus as claimed in claim 1, wherein a voltage detected on one of the connector pins, coupled to one of the field changeable graphics cards indicates the presence of a graphics upgrade on the graphics card.

Claim 21 (New): Apparatus as claimed in claim 20 wherein a first voltage level on the one connector pin indicates the graphics upgrade is present on the graphics card, and a second voltage indicates a loop-through card with no graphics processing unit is present.